AMENDMENTS TO THE CLAIMS

Please amend claims 1-4, 5-8, 10, 13, 15 and 22 as set forth below.

Please cancel claim 5 as set forth below.

Please add claims 24-35 as set forth below.

Listing of Claims

1. (Currently Amended) A regulator system for regulating the operation of an irrigation system, responsive to user programmed information, comprising:

a) a control element for issuing watering control signals to an irrigation system, comprising at least one of (i) a duration programming device for programming a minimum amount of time and a maximum amount of time for the suspension of watering by the irrigation system, and (ii) a user adjustable temperature programming device for programming a minimum allowed temperature for initiating a watering period by the irrigation system;

b) an irrigation system interface for connecting said control element with the irrigation system;

c) a switch included in said control element for conveying the control signals from the control element to the irrigation system via the irrigation system interface, for either permitting or prohibiting watering by the irrigation system, responsive to the control signals generated by and received from the control element; and,

d) a rainfall detection sensor in communication with said control element, said rainfall detection sensor being capable of sensing whether rain is currently falling or a rate of rainfall, wherein said control element transmits control signals to the irrigation system responsive to a rain currently falling condition or a rate of rainfall.

2. (Currently Amended) The regulator system of claim 1, said control element comprising only said duration programming device for programming a minimum [number of days] amount of time and a maximum [number of days] amount of time for the suspension of watering by the irrigation system.

3. (Currently Amended) The regulator system of claim 1, said control element comprising only said user adjustable temperature programming device for programming a minimum allowed temperature for initiating a watering period by the irrigation system.

4. (Currently Amended) The regulator system of claim 1, comprising at least both of (i) a duration programming device for programming a minimum amount of time and a maximum amount of time for the suspension of watering by the irrigation system, and (ii) a user adjustable temperature programming device for programming a minimum allowed temperature for initiating a watering period by the irrigation system.

5. (Cancelled)

6. (Currently Amended) The regulator system of claim 1, [further comprising a] wherein said rainfall detection sensor is in wirelessly communication with said control element such that said rainfall detection sensor [which is capable of sensing whether rain is currently falling or a rate of rainfall, and which alternatively] wirelessly transmits a watering signal or a watering suspension signal to the control element [irrigation system].

7. (Currently Amended) The regulator system of claim 1, further comprising a rainfall accumulation sensor in communication with said control element, said rainfall accumulation sensor being [which is] capable of measuring a quantity of accumulated rainfall; and wherein said rainfall accumulation sensor [which alternatively] transmits a watering signal or a watering suspension signal to the irrigation system responsive to a quantity of accumulated rainfall condition.

8. (Currently Amended) The regulator system of claim [1] 7, wherein said [further comprising a] rainfall accumulation sensor is in wireless communication with said control element and wherein said rain fall accumulation sensor [which is capable of measuring a quantity of accumulated rainfall; and which alternatively] wirelessly transmits a watering signal or a watering suspension signal to the irrigation system responsive to a quantity of accumulated rainfall condition.

9. (Original) The regulator system of claim 7, wherein the rainfall accumulation sensor comprises hygroscopic material that expands upon contact with moisture from water vapor, rain, snow, or ice.

10. (Currently Amended) The regulator system of claim 9, wherein said [a] rainfall accumulation sensor includes a switch [is] connected mechanically to said hygroscopic material and electrically to a transmitter, which transmitter is wirelessly connected to [the irrigation system] said control element, said [rainfall accumulation sensor] switch being responsive to said hygroscopic material [to] expanding a given amount indicative of a predetermined level of atmospheric precipitation, said [rainfall accumulation sensor] switch enabling said transmitter to wirelessly transmit signals to the control element [irrigation system] indicative of an atmospheric precipitation condition.

11. (Original) The regulator system of claim 1, wherein the irrigation system interface is connected to the irrigation system by wiring.

12. (Original) The regulator system of claim 1, wherein the irrigation system interface is connected to the irrigation system by a radio frequency, infrared, or ultrasonic transmitter for wirelessly transmitting control signals to the irrigation system.

13. (Currently Amended) The regulator system of claim 1, said control element further comprising a [remotely located] receiver [receptive of wireless signals from a transmitter,] for converting [the] wireless sensor signals into electrical control information, [for application to said control element for affecting timed preprogrammed operation of said irrigation system,] said control element being responsive to the

presence of said electrical control information for terminating any present or programmed future operation of said irrigation system, said control element being further responsive to the termination of said electrical control information for resuming timed preprogrammed operation of said irrigation system.

14. (Original) The regulator system of claim 12, wherein said transmitter comprises at least one energy source selected from the group consisting of an electric power line, a battery, solar energy, light energy, hygroscopic expansion energy, wind energy, temperature dependent expansion energy, and combinations thereof.

15. (Currently Amended) The regulator system of claim 1, further including at least one additional sensor connected to said control element selected from the group consisting of a light sensor, a pressure sensor, a wind sensor, and combinations thereof, [connected to the irrigation system and] which either permit or prohibit watering by the irrigation system, responsive to a signal generated by a sensed condition of said at least one additional sensor.

16. (Original) The regulator system of claim 1, further comprising a bypass switch which allows the current state of the control element to be ignored, which bypass switch is automatically resetting based on a change in state of the control element.

17. (Currently Amended) The regulator system of claim 1, wherein said irrigation system interface is connected to [further comprising] a timed preprogrammed watering cycle irrigation controller.

18. (Original) The regulator system of claim 1, wherein the control element comprises a programmable logic controller for issuing watering control signals to an irrigation system.

19. (Original) The regulator system of claim 1, wherein the control element comprises a microprocessor for issuing watering control signals to an irrigation system

20. (Currently Amended) A regulator system for regulating the operation of an irrigation system, responsive to user programmed information, comprising

a) a control element for issuing watering control signals to an irrigation system, comprising both (i) a rainfall detection sensor which is capable of sensing whether rain is currently falling or a rate of rainfall, and which wirelessly transmits control signals to the control element [irrigation system] responsive to a rain currently falling condition, and (ii) a rainfall accumulation sensor which is capable of sensing a quantity of accumulated rainfall, and which wirelessly transmits a watering signal or a watering suspension signal to the control element [irrigation system]; wherein each of the signals from the rainfall detection sensor and the rainfall accumulation sensor are independently recognized by the control element [irrigation system] and independently cause a response by the control element [irrigation system];

b) an irrigation system interface for connecting said control element with the irrigation system;

c) a switch for conveying the control signals from the control element to the irrigation system via the irrigation system interface, for either permitting or prohibiting watering by the irrigation system, responsive to the control signals generated by and received from the control element.

21. (Currently Amended) The regulator system of claim 20 wherein the signal from the rainfall detection sensor is ignored by the control element [irrigation system] after a predetermined period of time if a signal from the rainfall accumulation sensor is not received by the control element [irrigation system] within said predetermined period of time.

22. (Currently Amended) The regulator system of claim ~~20~~ 21 wherein the predetermined period of time, the amount of rainfall detected by the rainfall detection sensor for transmitting a control signal, and the amount of rainfall accumulated by the rainfall accumulation sensor for transmitting a control signal are programmable for variability.

23. (Original) The regulator system of claim 20 wherein the rainfall accumulation sensor comprises hygroscopic material that expands upon contact with moisture from water vapor, rain, snow, or ice.

24. (New) A regulator system for regulating the operation of an irrigation system, responsive to user programmed information, comprising:

a) a control element for issuing watering control signals to an irrigation system, comprising at least one of (i) a duration programming device for programming a minimum amount of time and a maximum amount of time for the suspension of watering by the irrigation system, and (ii) a user adjustable temperature programming device for programming a minimum allowed temperature for initiating a watering period by the irrigation system;

b) an irrigation system interface for connecting said control element with the irrigation system;

c) a switch included in said control element for conveying the control signals from the control element to the irrigation system via the irrigation system interface, for either permitting or prohibiting watering by the irrigation system, responsive to the control signals generated by and received from the control element; and,

d) a rainfall accumulation sensor in communication with said control element, said rainfall accumulation sensor being capable of measuring a quantity of accumulated rainfall; and wherein said control element transmits a watering signal or a watering suspension signal to the irrigation system responsive to a quantity of accumulated rainfall condition.

25. (New) A system for regulating an irrigation system comprising:

an environmental sensor control assembly having at least one environmental sensor and a computer logic device;

said microprocessor device having a watering suspension routine;

said watering suspension routine receiving signals from said at least one environmental sensor for determining whether to suspend watering of said irrigation system based on said signals;

said watering suspension routine receiving inputs from a user setting a maximum and a minimum period within which said routine can suspend watering of said irrigation system in response to said signals;

said environmental sensor control assembly being separate from, and connectable to, an existing central controller of said irrigation system.

26. (New) A system according to claim 25, wherein,

said microprocessor device further includes a minimum temperature routine;

said minimum temperature routine receiving temperature signals from said at least one environmental sensor for determining whether to suspend watering of said irrigation system based on said temperature signals;

said minimum temperature routine receiving inputs from a user setting a minimum temperature at which said routine can suspend watering of said irrigation system in response to said signals.

27. (New) A system according to claim 25, wherein said at least one environmental sensor includes a rain detection sensor.

28. (New) A system according to claim 25, wherein said at least one environmental sensor includes a rain accumulation sensor.

29. (New) A system according to claim 25, wherein said environmental sensor comprises hygroscopic disks that expand upon contact with moisture, and wherein said environmental sensor communicates wirelessly to said microprocessor device.

30. (New) A system according to claim 25, wherein said at least one environmental sensor includes both a rain detection sensor and a rain accumulation sensor.

31. (New) A system according to claim 30, wherein said at least one environmental sensor further includes a temperature sensor.

32. (New) A method of regulating an irrigation system comprising:

generating at least one environmental signal based on the sensing of an environmental condition with at least one environmental sensor;

determining whether irrigation should be suspended based on said at least one environmental signal;

generating an irrigation suspension signal;

communicating said irrigation suspension signal to a preexisting controller of said irrigation system;

causing said controller to suspend irrigation for a period of time based on minimum and maximum irrigation suspension times independently selected by a user.

33. (New) The method of claim 32, wherein the at least one sensed environmental condition is the existence of rain fall.

34. (New) The method of claim 32, wherein the at least one sensed environmental condition is the accumulation of rain fall.

35. (New) The method of claim 32, wherein the at least one sense environmental condition includes both the existence of rain fall and the accumulation of rain fall.

36. (New) The method of claim 32, further comprising:

generating a temperature signal;

generating an irrigation suspension signal based on said temperature signal when said temperature signal indicates a temperature below a minimum temperature independently selected by a user;

communicating said irrigation suspension signal to a preexisting controller of said irrigation system;

causing said controller to suspend irrigation for a period of time based on said temperature signal.